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Lee 232
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Before the Board of Appeals

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Supplemental
Examiner's Answer

1. This is a Supplemental Examiner's Answer to the reply brief filed on July 24, 1989.
2. In the remarks, applicant incorporates by reference the issues raised in the reply brief of application serial no. 719,507. The raised issues will be addressed under the following headings:

I. The Lawrence et al. and Maddock text editor were Interrupt Service Routines which got control immediately upon striking a key.

II. The Lawrence et al. and Maddock formatters regained control upon return from an interrupt and resumed processing where they were interrupted.

III. The Lawrence et al and Maddock formatters continuously maintained control of the central processing unit.

IV. The belated Lawrence claim limitation was in the original application.

3. I. The Lawrence et al and Maddock text editor were Interrupt Service Routines which got control immediately upon striking a key.

4. Lawrence et al and Maddock were two closely related text processing systems. Maddock discussed the Lawrence et al system in the background of the invention (see col. 1 lines 60 - 66). As discussed in the last office action, in Lawrence et al system, there was some inconsistency in the terms "invoked" and "interrupted". The examiner's position was that the inconsistency should be resolved in favor of the term "interrupted" and the examiner cited the teachings from Maddock, to support his position.

5. In the Reply Brief, applicant cited different passages from the specification and the abstract to support his contention that Lawrence et al's editor did not function as an interrupt service routine (emphasis added). Applicant asserted that the interrupt limitation recited in Lawrence et al's claims was confused, self-contradictory and inconsistent with the specification.

6. Maddock explicitly and unequivocally refuted applicant's assertion. Specifically, "(d)uring text editing operations, keystrokes from the keyboard 8 are processed by an interrupt handler 14 forming part of the editor/formatter software", (see col. 4 lines 20 - 22). Maddock's editor/formatter performed two functions, i.e. editing and formatting. Functionally, Maddock's editor/formatter could be broken down into two parts, i.e. editor and formatter, and they were equivalent to Lawrence et al's editor and interpreter/formatter because, as discussed hereinabove, the two systems were closely related to each other and performed the same basic functions. Hence, Lawrence et al's editor has the same property as Maddock's editor, i.e. the editor was an interrupt service routine.

7. Applicant stated that, in Lawrence et al system, the term "terminated", not "interrupted" was used, ("If a key is depressed during formatting, then the interpreter is terminated at the end of the current row and control is passed back to the keystroke processor 9", col. 11 lines 51 - 54). However, Maddock described the same operation using a different term (emphasis added). "(O)nce the background reformatting is commenced it will not be interrupted until the reformatting of the current line is completed", (col. 5 lines 52 - 54). Maddock clearly and explicitly suggested that the reformatting could be interrupted after the current line was completed (emphasis added). Therefore, the term "terminated" used by Lawrence et al should be interpreted as "interrupted", the term used by Lawrence et al in the claims and by Maddock and supported by the specification. Moreover, Maddock taught that "prior to this text edit operation, reformatting of the text in buffer 3 was already in progress. The text edit operation interrupted reformatting at a time" (emphasis added), (col. 6 lines 32 - 35). This disclosure further stressed that the reformatting was interrupted by the editing.

8. Applicant stated that "an interrupt service routine gets control immediately, and transfer of control cannot be delayed until the interrupted routine reaches "the end of the current row"". Maddock showed that the delay of transfer of control was possible because, in the actual implementation of the system, no delay was detected. "(T)he reformatting bursts of a line at a time are short compared to typical inter-stroke time, reformatting is generally performed as a substantially continuous operation", (col. 5 lines 61 - 64). After reformatting each of the lines, the reformatting could be interrupted. A key was struck to enter a letter and thereafter the reformatting would be continued. At the time the next key was struck, the current line had been reformatted because the reformatting time for one line was less

than the inter-keystroke time and the reformatting process would then be interrupted. In other words, due to the differences in the reformatting time and inter-keystroke time, when a key was struck, the reformatting process was interrupted immediately and the control of the system was transferred to the editor which was an interrupt service routine.

9. II. The Lawrence et al and Maddock formatter regained control upon return from an interrupt and resume processing where they were interrupted

10. Applicant asserted that Lawrence et al's formatter always resumes formatting "at the top of the screen". Applicant's position is misleading. Lawrence et al stated that "(f)ormatting starts at the top of the screen", (col. 10 lines 67 - 68). Within the context of the reference, the statement meant the formatting process for a screen started at the top of the screen. Lawrence et al did not detail where the formatting process would be resumed after it was terminated (interrupted). Based upon the statement from col. 10 lines 67 - 68, applicant speculated that the formatting would always be resumed at the top of the screen (emphasis added).

11. On the contrary, Maddock showed that the reformatting would be resumed at the point where it was interrupted. Fig. 4 of the drawing and col. 6 line 23 - col. 8 line 31 discussed in detail the resumption of the reformatting after it was interrupted. Using an example which was slightly different from the one given in fig. 4, it would be clear that the reformatting was returned to where it was interrupted. Specifically, at the time the reformatting was interrupted, the line number of the first line where reformatting was to be continued was saved in table 15, (col. 6 lines 39 - 41). If a new letter was added to line 5, a

new line, the reformatting was interrupted and the next line to be reformatted would be line 4. The new letter was, then, put on the screen by the editor. "Assuming there is still no keystroke pending in the queue, a second burst of background reformatting is performed.", (col. 7 lines 55 - 57). In other words, the control of the central processing unit was returned to the reformatter after it was interrupted. The reformatting process would return to the first line number stored in table 15, i.e. line 4, to continue the process. Hence, the reformatting process was returned to where it was interrupted.

12. III. The Lawrence et al and Maddock formatter continuously maintain control of the central processing unit.

13. Applicant asserted that "(c)ontrol by the formatter of the central processing unit means that the latter unit is executing the instructions constituting the formatter". Applicant stated that, in both Lawrence et al and Maddock system, it would be pointless for the formatter and reformatter to maintain control of the central processing unit after the formatting and reformatting operation was finished.

14. Maddock did not detail what action the reformatter would take after the reformatting processor was finished. Maddock's editor was an interrupt service routine, (see col. 4 lines 20 - 22) and the editor had to interrupt the reformatter when a new key was struck, (see col. 6 lines 34 - 35). It clearly suggested that the reformatter had continuous control of the central processing unit until it was interrupted. After the reformatter finished the reformatting process, the reformatter still had the control of the central processing unit until it was interrupted. Before it was interrupted, inherently, it went into a loop for the same purpose as applicant's compiler of waiting for the next inputted data to

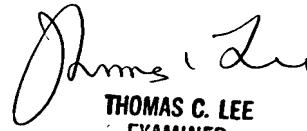
process the data. See page 16 lines 9 - 16 of the specification of the subject application. When there was no keystroke, the reformatter would not be interrupted. Therefore, the reformatter maintained control of the central processing unit.

15. IV. The belated Lawrence claim limitation was in the original application.

16. Applicant correctly stated that claim 1 of Lawrence patent recited "a text editing step" whereas the original claim 9 recited "a text editing process". Applicant then cited the pertinent definition of the word "process" from Webster's New World Dictionary wherein it stated that "process" being "a particular method of doing something, generally, involving a number of steps of operations". (emphasis added). It is important to note that Webster's New World Dictionary never use the word must in the definition, instead it uses the word generally. Therefore, the word "process" clearly contemplates to encompass a particular method of doing something involving a single step. The belated limitation of "a text editing step" was clearly encompassed in the limitation, "a text editing process", of the original claim 9 and, hence, was in the original application.

17. Furthermore, Lawrence et al stated that "(i)f a key is depressed during formatting, then the interpreter is terminated", (see col. 11 lines 51 - 52) and the title of the Lawrence et al patent as originally filed was "Text processing apparatus with editing of stored document at each keystroke". Lawrence et al's specification and title clearly supported the notation that a text editing process was a text editing step - one keystroke.

18. The the above reason, it is believed that the rejections should be substained.



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